

SECRET  
(When Filled In)

Approved For Release 2005/05/02 : CIA-RDP78B04770A002300030016-8  
CONTRACT INSPECTION REPORT

25X1

TO:

ENGINEERING SECTION/CB/PD/OL

DATE

27 April 1964

INSPECTION REPORT NO. (If final, so state)

8

ESTIMATED COMPLETION DATE

June 1964

NAME OF CONTRACTOR

Declass Review by NGA.

TYPE OF COMMODITY OR SERVICE

**Applicability of Perceptron to PI**

THE CONTRACTOR IS ON SCHEDULE



YES



NO

PER CENT OF WORK COMPLETED

90%

THE CONTRACTOR WILL PROBABLY REMAIN WITHIN ALLOCATED FUNDS ☒ YES ☐ NO IF ANSWER IS "NO" ADVISE RECOMMENDATION AND/OR ACTION OF SPONSORING OFFICE, ON REVERSE HEREOF. IF KNOWN, INDICATE MAGNITUDE OF ADDITIONAL FUNDS INVOLVED.

HAS AN INTERIM REPORT, FINAL REPORT, PROTOTYPE, OR OTHER END ITEM BEEN RECEIVED FROM THE CONTRACTOR DURING THE PERIOD? ☒ YES ☐ NO (If yes, give details on reverse side.)

**Monthly Progress Report for March 1964**

HAS GOVERNMENT-OWNED PROPERTY BEEN DELIVERED TO CONTRACTOR DURING THIS PERIOD? ☐ YES ☒ NO (If yes, indicate items, quantity, and cost on reverse side.)

**OVERALL PERFORMANCE OF CONTRACTOR**

1. ☐ OUTSTANDING

3. ☐ EXCELLENT

5. ☒ ACCEPTABLE

7. ☐ UNSATISFACTORY

2. ☐ SUPERIOR

4. ☐ HIGHLY SATISFACTORY

6. ☐ BARELY ADEQUATE

IF OVERALL PERFORMANCE OF CONTRACTOR IS UNSATISFACTORY OR BARELY ADEQUATE, INDICATE REASONS ON REVERSE SIDE.

**RECOMMENDED ACTION**



CONTINUE AS PROGRAMMED



WITHHOLD PAYMENT PENDING SATISFACTORY PERFORMANCE



TERMINATE



OTHER (Specify)

IF TERMINATION IS RECOMMENDED OR IF THIS IS A FINAL REPORT ATTACH COMMENTS IN NARRATIVE FORM ON CONTRACTOR'S PERFORMANCE AND CERTIFY THAT ALL DELIVERABLE ITEMS UNDER THE CONTRACT HAVE BEEN RECEIVED. THESE INCLUDE, WHERE APPLICABLE, THE FOLLOWING:

ITEM	REC'D	DOES NOT APPLY	ITEM	REC'D	DOES NOT APPLY
PROTOTYPES			MANUALS		
DRAWINGS AND SPECIFICATIONS			FINAL REPORT		
PRODUCTION AND/OR OTHER END ITEMS			SPECIAL TOOLING		
			OTHER GOVERNMENT PROPERTY		

DATE OF LAST CONTACT WITH CONTRACTOR

Telecon with

7 April 1964

SIGNATURE OF INSPECTOR

DIVISION

P&DS

SIGNATURE OF APPROVER

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FORM  
3-64

EDITION

SECRET  
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GROUP 1  
Excluded from automatic  
downgrading and  
declassification

(12-36)



25X1

Letter Report No. 27

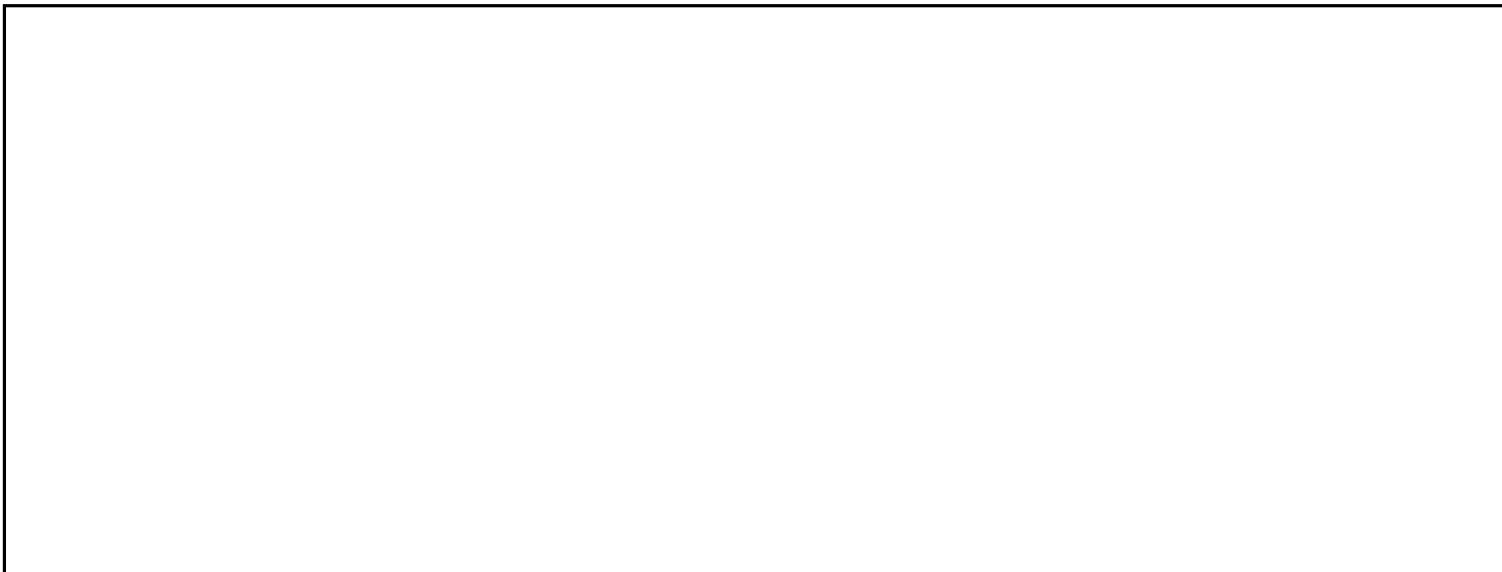
Investigation of Perceptron Applicability to  
Photo Interpretation



Monthly Letter Report  
for the month of April 1964

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Report No. 27

Letter Report No. 27

Investigation of Perceptron Applicability toPhoto Interpretation

Monthly Letter Report  
for the month of April 1964

1.0 INTRODUCTION

Project PICS is an investigation of the applicability of perceptrons to automation of certain parts of the photo interpretation task. Particular emphasis is placed on area and object recognition based upon properties derived from two-dimensional power spectra. Accordingly, effort is centered in the following major areas:

- 1) Theoretical and experimental evaluation of the properties which can be derived by optical spatial filtering
- 2) Design and implementation of a recognition system based upon such properties
- 3) Design of optical-electronic spatial filtering equipment
- 4) Research based upon ideas whose immediate applicability cannot be stated, but of potential long-term benefit.

2.0 ACTIVITY AND ACCOMPLISHMENTS DURING APRIL 19642.1 Property Evaluation

Continued experiments with the Mark III Spatial Filter Recognition Apparatus are described in the next section.

2.2 Design of Optical Electronic Spatial Filtering Apparatus

Previous reports have described the assembly and test of a line-structure detector based upon scanning and optical filtering techniques. As a final experiment under the current funding, we attempted to remove the effects of non-uniform illumination and non-uniform average density of the object transparency, since these were the major remaining deficiencies of the apparatus in its present form.

A thin sheet of glass was placed at an angle to the optical axis just beyond the Fourier lens to act as a beam splitter. This introduces negligible attenuation in the signal channel but diverts adequate light for average intensity measurement. A photo-multiplier was used as a detector for this reference signal. A logarithmic attenuator was placed in both the signal and reference channels and their outputs subtracted. The resulting signal is thus effectively the log of the ratio of signal intensity to reference intensity. Given adequate illumination this new signal is not affected by illumination or density variations.

Adequate experimental evidence of the workability of this compensation technique was obtained. Photographs of the line-detection performance will appear in the final report.

### 2.3 Recognition Studies

No work was performed in this area during April.

### 3.0 PLANS FOR MAY 1964

All project experimental and theoretical effort was terminated at the end of April. Sufficient contract funds remain to write the final report, and this will be the principal activity for the remaining contract period.

### 4.0 REPORTS

No reports other than the regular monthly letter report were due or issued during April.

A report on work which preceded the current contract period (i. e. up to June 1963) is in preparation and will be issued soon. The final report will then cover the efforts since June 1963.